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Managing Problem Bears A Program Review



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MANAGING PROBLEM BEARS

A PROGRAM REVIEW

APRIL 1987

Canadian Cataloguing in Publication Data

Tompa, F. S.

Managing problem bears

Bibliography: p.

ISBN 0-7726-0665-X

1. Bears - Control - British Columbia. I. British
Columbia. Ministry of Environment and Parks.
II. Title.

QL737.C27T65 1987 639.9'7974446'09711 C87-092115-0

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CONTENTS

	Page
INTRODUCTION	2
SECTION 1	
THE PROBLEM BEARS	3
BEARS IN B.C.	3
CAUSE OF PEOPLE/BEAR CONFLICTS	3
INCIDENCE OF PEOPLE/BEAR CONFLICTS	5
SECTION 2	
MANAGING PEOPLE/BEAR CONFLICTS	9
PUBLIC RELATIONS IN MANAGING CONFLICTS	17
RESEARCH NEEDS IN MANAGING CONFLICTS	18
SECTION 3	
RECOMMENDATIONS	19
APPENDIX	22
REFERENCES	23

INTRODUCTION

The province of British Columbia is rich with wildlife, including bears. In many areas, the number of bears has increased as the human population of B.C. has grown. Today, bears live close to many settlements and rural developments, creating the potential for serious conflicts.

In the interest of both people and bears, the B.C. Ministry of Environment and Parks has been working to control the number and nature of these conflicts. In 1986, following a summer that was rife with "bear-in-my-backyard" complaints and concern over the resulting numbers of bears that were destroyed, the Ministry began a review of its procedures and programs regarding problem bears.

The purpose of the review was to:

- * evaluate the existing program to protect bears and to safeguard human life, health and property; and
- * to amend or reconfirm procedures based on the evaluation.

This report presents the findings, conclusions and recommendations of that review.

SECTION 1

THE PROBLEM WITH BEARS

BEARS IN B.C.

There are two species of bears in B.C.: the black bear and the grizzly bear.

Black bears reproduce at a moderate rate and roughly 60,000 of them live in the province. They are widely distributed, occupying almost all habitats from beaches and forests to alpine meadows. Their population density varies. Heavy concentrations occur around some human settlements and rural developments. Although man is the main predator, interest in black bear hunting in B.C. is very limited.

Grizzly bears reproduce at a lower rate than black bears and are less abundant. There are roughly 6,000 Grizzly bears in B.C. Generally, grizzlies live in wilderness and semi-wilderness areas in the mountains, the northern and central interior, and along the coast. Unlike black bears, heavy concentrations of grizzlies do not usually occur around human settlements but they can be lured long distances to dumps and campsites. Their range is gradually shrinking due to activities such as ranching, mining and other developments.

The population of both species of bears fluctuates annually according to natural changes in food supplies, and rates of reproduction and mortality. However, because of the bears' late maturation and relatively low reproduction rates, population changes are not pronounced. Instead, they occur over a period of years.

CAUSES OF PEOPLE/BEAR CONFLICTS

Generally, conflicts between people and bears result from a variety of human activities that attract bears to food in populated areas. Some of these conflicts arise from the way bears behave; others from the way people behave. Some of the causes of people/bear conflicts are listed below. Understanding how they develop is an important step in finding ways to avoid and control conflicts.

THE PROBLEM BEARS

(Cont'd)

A. Characteristics of Bears That Can Lead to Conflicts

Young bears, especially males, may search for vacant habitats in areas where people are working or living. This is particularly likely when local bear populations have grown, following several years of high reproduction and survival rates. Available habitats become overcrowded, forcing young bears to move on.

- * The failure of critical food supplies, such as salmon and berries, increased competition among bears, forcing them to search for alternative supplies such as farm crops or garbage.
- * Like people, bears eat a wide range of food and they can develop individual food preferences and habits. Once they discover a preferred food at an accessible site, such as a dump, they tend to return.
- * Orphaned cubs and old or handicapped bears seek readily accessible food, particularly around rural and suburban developments.
- * Bears can be protective and territorial in their own habitat. If people suddenly come into close contact with them, the bears may be provoked to attack. This is especially true at feeding or resting sites, or when the bears are in family groups.
- * In rare instances, both grizzly and black bears consider people as prey. Bears that are accustomed to people or those that have trouble acquiring natural foods may be particularly dangerous.

B. Activities of People That Can Lead to Conflicts

- * Human activity within natural bear habitat causes bears to lose their fear of people. These bears seek new sources of food around recreational and industrial campsites. In wilderness or semi-wilderness areas, this food can lure grizzly bears from great distances.
- * Where farms are developed in areas interspersed with wildlife habitats, bears are attracted to standing crops, compost, livestock and other rural products.

THE PROBLEM BEARS

(Cont'd)

- * Where settlements are developed near creeks or corridors of shrubs that provide avenues from natural habitats, bears can wander into suburban developments, especially if food sources are available.
- * Poorly managed dump sites and backyards attract bears from a wide surrounding area. The potential for serious conflict is particularly high where access to dumps channels the bears through suburban developments, and municipal or industrial parks.
- * People cause conflicts directly by:
 - * feeding bears;
 - * approaching bears too closely (especially female bears with cubs);
 - * attempting to save apparently orphaned cubs; and
 - * injuring bears intentionally.
- * Most bear hunting occurs in wilderness areas. Local firearm discharge laws prevent hunting near settlements, resulting in a potential concentration of problem bears.

INCIDENCE OF PEOPLE/BEAR CONFLICTS

A comprehensive review of problem bear management in 1977 (Tompa) revealed that, up to that time:

- * over 60 per cent of all the wildlife complaints received and recorded by the Ministry of Recreation and Conservation (now the Ministry of Environment and Parks) were bear-related;
- * more than 80 per cent of all the complaints about bears were concerned with human safety within or near settled areas, mostly in urban settlements; and
- * most of the problems with bears arose because the bears were attracted to food sources associated with people:
 - * garbage at dumps, recreational camps, industrial camps and in residential areas;
 - * compost piles;
 - * orchards; and
 - * farm crops and livestock.

THE PROBLEM BEARS

(Cont'd)

In 1978, the Ministry introduced a computerized form for the mandatory reporting of all serious wildlife complaints. During 1978 and 1979:

- * over 60 per cent (about 1,000) of all the wildlife complaints received each year were serious black bear complaints;
- * the number of bear-related incidents were high throughout B.C. near major urban centres such as Greater Vancouver, Prince George and Kamloops; but
- * there was a significant drop in the number of human safety incidents--69 per cent of all black bear complaints compared to 80 per cent in the 1977 report.

The decrease in conflicts that threaten human safety is attributed to improved waste management at municipal and rural dump sites, and to cooperation among agencies in resolving chronic bear problems at dump sites. (Both these changes were made in response to the 1977 comprehensive review of problem bear management.) However, as it is harder to control garbage disposal habits of individuals, chronic bear problems continued to exist in some suburbs.

In 1980, the Ministry introduced an additional reporting form for recording all minor wildlife complaints that involved no serious threats and required no animal removal. Having this form increased the numbers of annual wildlife complaints considerably.

From 1980 to 1985, an annual average of 656 black bear complaints concerned human safety, mainly in residential areas. An additional 1,195 nuisance reports were made each year. In these instances, there was no real threat to human life or property and no action was necessary to remove or destroy the animals. However, it is likely that more of these minor incidents involved bears that eventually became reliant on human-related sources of food and had to be destroyed later.

Incidence of Bear Attacks on People

There are no computerized records of bear attacks before 1978. Other records confirm 17 non-fatal attacks between 1951 and 1977, and three fatal attacks in B.C. between 1961 and 1967.

THE PROBLEM BEARS
(Cont'd)

An average of 4.5 human injuries resulted from bear attacks in 1978 and 1979, and an average of 5.5 each year from 1980 on. Four people have been killed in B.C. by black bears since 1978; two of those deaths occurred in 1985. Two deaths have attributed to grizzly bears since 1977. It is interesting to note that none of these fatal encounters involved the defense of cubs, a cause commonly attributed to bear attacks.

TABLE 1
PROBLEM BEAR CASES IN B.C.

1978 - 1985

Topic/Year*	78	79	x	%	80	81	82	83	84	85	x	%	Remarks
COMPLAINTS													
All wildlife	1094	2064	1579	--	6057	4978	4103	5931	4583	4394	5008	--	78/79 60.5% of all complaints 80/85 36.8% of all complaints were black bear related
Black Bear	646	1203	955	100.	2558	2053	1231	2162	2071	995	1845	100.	
-human safety	441	848	645	68.	729	666	583	757	857	346	656	36.	
-livestock	94	126	110	12.	123	85	58	98	66	40	78	4.	
-property	175	475	325	34.	381	366	134	255	252	83	245	13.	
-nuisance	192	329	261	27.	1684	1244	672	1498	1399	673	1195	65.	
DAMAGE BY													
BLACK BEAR													
-human death	-	-	-	-	1	-	-	-	1	2	0.7	-	
-human injury	5	4	4.5	-	7	6	1	13	2	4	5.5	-	
-livestock	95	129	112	-	135	75	53	112	66	56	83	-	
loss													
CONTROL ACTION													
-black bear	303	596	450	47.	704	452	297	550	554	210	461	25.	
destroyed													
-black bear	47	88	68	7.	75	53	27	61	62	8	48	3.	
translocated													
-preventative	132	284	208	22.	217	242	166	192	225	95	190	10.	
mgt.													

* Computer forms to report problem wildlife matters were introduced in 1978. During 1978 and 1979 only major problems (actual damage or threat of damage and injury) were included. In 1980 a form for the numerical reporting of all minor, nuisance wildlife complaints was introduced. As a result, for 1980-85 the number of general complaints were more than doubled and black bear-related complaints were about doubled through dilution, in comparison with previous years.

SECTION 2

MANAGING PEOPLE/BEAR CONFLICTS

Some of the causes of people/bear conflicts are manageable; others are not. There is no simple solution that can be applied safely and universally. Management tactics that work well in one situation may be ineffective and even harmful in others. In practically every situation, the choice of appropriate action must be made on the site--based on specific conditions and policy guidelines.

There are two basic ways of dealing with people/bear conflicts: prevention and reactive management.

The best strategy is prevention. It provides the best protection for people and their properties as well as for bears. Prevention tactics focus on the more manageable problems such as waste management. Unfortunately, in a province where people and abundant wildlife live in close proximity, potentially dangerous situations will develop despite the best preventive efforts.

Reactive management offers fewer courses of action and provides less protection to both people and bears. Often it means taking immediate action to prevent death, injury and/or serious property damage. Where prompt action is not taken, bears can become firmly established in developed areas, increasing the potential for serious conflicts with people. In reactive management, solutions are often limited to destroying bears.

The following management tactics may be used alone or in combination. They may be part of either preventive or reactive strategies.

MANAGING PEOPLE/BEAR CONFLICTS (Cont'd)

MANAGEMENT TACTICS

A. Regional Planning

The purpose of regional planning is to:

- * identify potential conflict areas on the basis of past events and current information, including an inventory or estimate of bear populations and population trends.
- * select preventive and/or reactive management tactics that are appropriate to local circumstances.
- * identify areas where translocated bears can be released. These areas must allow for public safety as well as bear survival. They should be determined by factors such as accessibility, distance from conflict areas, local bear population trends, and the availability of habitat and food.
- * develop public information and education programs to alert local residents prior to the problem bear season and to obtain their cooperation in preventive programs.
- * prepare for potentially acute conflicts by drawing up a budget and planning the allocation of equipment and manpower for regional "hot spots".

Regional planning is primarily the responsibility of the Ministry of Environment and Parks, involving management and enforcement personnel at provincial, regional and district levels. They may involve waste managers, wildlife managers and conservation officers within the Ministry, and in some areas, local agencies (police, municipal authorities, and managers of fisheries, forests and industry) and members of the public (trappers, hunters and residents).

These plans are basic to effective people/bear conflict management in both the long term and the short term. They enable the Ministry to:

- * develop adequate and appropriate preventive measures before people/bear conflict seasons; and
- * outline a range of contingency measures to meet acute conflict situations.

Region plans are economical because they result in fewer and less serious people/bear conflicts. They save lives, properties, wildlife resources, equipment and manpower.

MANAGING PEOPLE/BEAR CONFLICTS

(Cont'd)

B. Information and Education Programs

The purpose of these programs is to gain public understanding, cooperation, and acceptance of problem bear management. Programs that explain the need for public cooperation are critical in preventing people/bear conflicts. Programs that explain management options encourage the public to help rather than obstruct management personnel in their duties. Ultimately, the level of public cooperation will determine whether management strategies are primarily preventive or reactive.

These programs can be conducted through:

- * the media (local newspapers, radio and TV);
- * information materials such as leaflets;
- * formal contact with local residents through discussions, slide presentations, lectures and correspondence; and
- * on-site contact with bystanders where problem bears are being handled (to explain what is happening, why action is required and why a certain tactic has been chosen).

C. Management of Bear Attractants

This tactic is probably the most effective preventive action. The most potentially dangerous people/bear conflicts develop where ready food supplies attract bears outside of their natural habitat.

The following attract bears:

- * livestock and other farm products;
- * backyard composts, garbage containers and litter;
- * pets;
- * backyard fruit trees and windfalls;
- * municipal, regional and industrial refuse collection and disposal systems;
- * food and garbage at industrial and recreational camps; and
- * human behaviour such as feeding bears in residential areas, parks and campsites.

In areas with chronic seasonal bear problems, it is especially important for the Wildlife and Waste Management Branches to work with local municipalities, law enforcement authorities and public interest groups to manage bear attractants well.

MANAGING PEOPLE/BEAR CONFLICTS

(Cont'd)

The Waste Management Branch is responsible for enforcing and improving regulations for garbage disposal. However, the effective management of many bear attractants depends on the cooperation of the public. Action to remove bears from conflict areas wastes funds and manpower unless the attraction and conditioning of problem bears is minimized.

D. Control of Bear Access to Potential Problem Areas

Particularly when used with controls of bear attractants, this tactic can improve the effectiveness of efforts to manage problem bears. It should be used whenever it is applicable.

Examples of methods of controlling bear access include:

- * constructing bear-proof fencing, platforms and other structures that prevent access to livestock, beehives, food storage areas and waste containers;
- * locating potential bear attractants away from the forest edge, thickets or any avenue travelled by bears; and
- * managing habitats wherever they provide a direct avenue to populated or intensively used areas.

Control of bear access normally requires close cooperation between the Ministry, other agencies, local authorities and public interest groups.

E. Translocation of Problem Bears

This tactic is preferred when action is needed to resolve existing conflicts. It offers the greatest protection for the bear and receives the most public acceptance.

However, the purpose of problem bear management is to protect human life property as well as the bear. Therefore, translocation is a solution only when it does not create a hazard or when it provides the bear with a reasonable chance to survive in the wilderness.

The decision to leave, translocate or destroy bears is usually made at the site of the conflict. Ministry or other authorized personnel make a decision on the basis of provincial and regional policies, and conditions at the site.

MANAGING PEOPLE/BEAR CONFLICTS (Cont'd)

Policy guidelines should be provided regarding the conditions for translocation. For example, guidelines could recommend translocation:

- * when the bears do not pose an immediate hazard to people or property.
- * when the bears do not have a history of problems, do not show signs of being conditioned to people-related food, are not overtly aggressive towards people or livestock, or are not deliberately seeking out areas of human activity.
- * when the bears appear healthy and mature.
- * when a family group, such as a sow and cubs, can be safely captured.
- * where live bear traps can be set up without any interference by the public that may reduce the safety or the effectiveness of the traps.
- * where immobilization drugs can be used without exposing the public to danger from either the drug darts or the drugged animals; or without exposing a bear to injury while it is drugged.
- * when bears can be translocated to areas that are far enough away to prevent their return and yet close enough to make translocation practical. Release areas should be chosen in consultation with regional wildlife managers. These areas must have adequate bear habitat and food, and must not already be overpopulated with bears.
- * when zoos or game parks have adequate facilities to keep bears. However, those few that have the facilities are normally well stocked with bears. (This option has very limited potential although occasionally zoos or parks may accept some orphaned cubs).
- * when the opportunities for translocation are marginal but the bears involved are grizzlies--especially females.

The capture and translocation of problem bears is undertaken and/or supervised by Ministry personnel or by others who are qualified. Bears are translocated according to policy guidelines.

Between 1980 and 1985, an average of 48 bears were translocated annually. Most were removed from urban areas.

MANAGING PEOPLE/BEAR CONFLICTS

(Cont'd)

F. Destroying Problem Bears

In critical conflicts, the protection of human life takes priority over the protection of bears. Destroying problem bears is usually recommended:

- * when immediate action is necessary for the safety of people and property;
- * when the bears are recognized (through habits, markings or tags) as being aggressive or conditioned to people-related food;
- * when the bears are dependent cubs or when they are wounded, sick, starving or old and have little chance of surviving in the wilderness;
- * where the conditions for safe capture are poor;
- * where areas for release or temporary holding are not available; and
- * where emergency situations preclude spending the time to translocate problem bears.

Ministry personnel destroy problem bears according to policy guidelines. Sometimes, in emergency situations, local police may remove bears to protect a human life. Section 27(2) of the Wildlife Act gives authority to a private individual to destroy bears that menace domestic animals on his/her property. In some situations, licenced hunters may shoot problem bears in open season.

Between 1980 and 1985, an average of 461 problem black bears were destroyed annually. This had no noticeable adverse affect on the provincial population levels.

G. Population Control

Methods of population control can be used where there is a large number of young bears, usually males, searching for territory. This can occur:

- * when favourable conditions have resulted in an unusually high cub survival over several years;

MANAGING PEOPLE/BEAR CONFLICTS

(Cont'd)

- * where the terrain channels large numbers of bears into developed areas; and
- * where the failure of major food sources, such as berry crops creates a shortage of food relative to population.

Population control measures can be both preventive and reactive. They can be used:

- * where hunting is permitted in access areas surrounding human developments. Between 1980 and 1985, the harvest of black bears was 7.2 per cent of the total population in B.C. Because of the moderately high productivity of the black bears, that harvest rate can be sustained on a long-term basis. In access areas, higher bag limits and longer spring and/or fall hunting seasons could be allowed. Hunting can provide the public with an active role in bear control and discourage opposition from those who disapprove of government control programs. The option also offers low costs and better use of the bear resource.
- * where there are acute people/bear conflicts. Kill permits can be issued to the public or reliable bear hunters/trappers can be contracted to destroy problem bears.
- * where most of the bears have not yet become conditioned to living on human-related food sources and have a good chance of surviving in wilderness areas. This option can be particularly effective if bears can be captured in areas that channel them into human developments. The early translocation of bears could prevent a conflict from developing. Although this option is popular with the public, it is only feasible if a place can be found to release the bears. Overpopulation and food failures generally exist over extensive areas.

Under "natural conditions," problems created by high populations are resolved through increased mortality. Therefore, the removal of potential problem bears created by a surplus is not a contradiction of nature. Transferring them to areas that are also overpopulated is a contradiction.

If left alone, these surplus bears could only increase their chances of survival by moving into areas of low bear populations. Unfortunately, these areas are usually also areas of human development.

MANAGING PEOPLE/BEAR CONFLICTS (Cont'd)

H. Alternate, Non-lethal Methods

Wherever these methods are applicable and effective, they should be used to help resolve people/bear conflicts. Several have been used in the past with varying success. New methods may become available in the future.

These alternate methods include:

- * aversion conditioning in which animals learn to avoid certain foods or sites through associations with bad taste or ill effects. However, this method is impractical with bears because they eat a wide variety of food. Aversion conditioning to a site is also difficult because people/bear conflicts occur in such a variety of places. Because this method needs repeated reinforcement, it is not reliable enough to protect life and property.
- * birth control drugs, where long-term repression of bear populations are desired. However, there are no reliable methods of implementing this technique and its administration is very difficult. Because bear problems normally involve individual bears--not whole populations--the drugs are not a logical solution.

Because grizzly and black bears are long-lived and mature sexually late in life, the drugs may have harmful long-term consequences--they could affect local bear populations for several generations. Although birth control for bears appeals to those who oppose hunting, it does not protect the species and may even endanger it.

- * scaring devices. This method can be useful in preventing bears from becoming conditioned. It includes (1) rubber bullets, which have had a limited success with both bear species; (2) acoustic devices which may also be used in camp food storage areas, beehives and other places where they do not disturb people unreasonably. However, bears can become accustomed to these methods. Therefore, they should be used as supplements, and not as substitutes for other methods.
- * guns that electrically stun attacking bears. These guns are possibly useful as a method of self-defense. However, they cannot be used successfully in prevention of people/bear conflicts. Because their widespread use may lead to abuse, these guns are restricted in Canada and are not available to the general public.

MANAGING PEOPLE/BEAR CONFLICTS (Cont'd)

- * feeding bears to keep them away from areas of human activity. This may appear to be the ideal solution but it is impractical. Bears are mainly solitary animals. They roam over a wide range. Providing food to well-dispersed bears is difficult and financially prohibitive. Further, the artificial feeding of bears may help surplus individuals survive, preventing natural mortality that would bring the numbers back into balance.

Since most action to resolve people/bear conflicts occurs close to human population centres, problem bear management is not likely to affect the long-term population of black bears in B.C. However, the unreported take of grizzlies can be high. For instance, the disappearance of grizzlies from the southern interior during the first half of this century is largely due to livestock protection.

To provide maximum protection to both black and grizzly bears, emphasis must be placed on the prevention of conflicts. That is more of a social responsibility than a regulatory one. Preventive management must rely on cooperation between the Ministry and other agencies, industry, public interest groups and individuals. Unless a high level of cooperation is achieved, the Ministry will have to resolve conflicts primarily through reactive programs--essentially by destroying bears that threaten the safety of people and property.

PUBLIC RELATIONS IN MANAGING CONFLICTS

An antagonized public is less willing to accept problem bear management programs--preventive or reative--and will block them whenever possible. In the interests of building good public relations, field personnel, management staff and their supervisors should operate according to the following principles:

- * the public and the press have a right to know what action is taking place and why. In the long run, denial of this information is destructive to any program.
- * if the situation does not allow the personnel to communicate with the public objectively, interested individuals and the press should be politely referred to information officers, supervisors and management staff.
- * if problem bears must be destroyed, the public should be warned that the sight may be offensive. People should be asked to leave the immediate area for safety reasons. Pack-up personnel and local law enforcement officers can be helpful in these situations.

MANAGING PEOPLE/BEAR CONFLICTS

(Cont'd)

RESEARCH NEEDS IN MANAGING CONFLICTS

Research into bear behaviour and population dynamics can help bear managers understand the ways bears are conditioned and how conflicts develop. In turn, that understanding can lead to improved bear management practices. The following are a few of the research areas that deserve attention, either locally or at the provincial level:

- * the impact of human activities and human-related sources of food on bear populations--on their movement, dispersal and social relationships;
- * the factors, such as age, sex, food supply, cover and distance from capture site, that influence the movements of translocated bears;
- * the age and sex composition of problem bears in different situations (for instance, when a shortage of seasonal food causes overpopulation); and
- * the effect of different scaring devices in various conflict situations.

SECTION 3

RECOMMENDATIONS

The purpose of these recommendations is to:

- * improve the effectiveness of problem bear management;
- * increase human property safety;
- * increase the protection of bears;
- * clarify policy procedures; and
- * promote public understanding, acceptance and cooperation.

RECOMMENDATIONS FOR MANAGEMENT OF PROBLEM BEARS

A. Request regions to:

- * establish a procedure to identify potential areas of serious people/bear conflicts prior to bear season;
- * make contingency plans for preventive as well as reactive bear management action; and
- * allocate manpower, equipment and funds to support these plans.

B. Request regions to place their emphasis on preventing or reducing the seriousness of existing conflicts.

C. Request regions to enlist, where necessary, the help of other management agencies, industry, media and local public interest groups in cooperative, preventive management programs.

RECOMMENDATIONS

(Cont'd)

- D. Make translocation the preferred option for dealing with problem bears. Translocation should be subject to provincial and regional policy guidelines. Bears should be destroyed as a last resort for resolving problems.

RECOMMENDATIONS FOR PUBLIC INFORMATION AND EDUCATION

- A. Maintain close liaison with local governments and to secure their cooperation in preventive programs;
- B. Establish annual provincial and regional public information and education programs prior to problem bear seasons to:
 - * alert the public to potentially serious people/bear conflicts; and
 - * provide advice on how these conflicts can be prevented or moderated.
- C. Publish a public information leaflet which clearly explains:
 - * the major causes of people/bear conflicts;
 - * the range of available preventive and reactive management options; and
 - * the ways that the public can cooperate in problem bear management programs.

RECOMMENDATIONS FOR RESEARCH

- A. Initiate research programs to:
 - * increase understanding of the development of people/bear conflicts;
 - * improve management strategies and tactics; and
 - * increase the range of available options.
- B. Address the following issues, singly or in combination: (in order of priority)
 - * the role of bear attractants in developing and managing conflicts;

RECOMMENDATIONS

(Cont'd)

- * the success of translocation in relation to distance, access to other developed areas and chances of wilderness survival;
- * bear movements and dispersal in recognized conflict areas;
- * conflict development versus the age/sex composition of bears;
- * non-lethal methods; and
- * others.

RECOMMENDATIONS FOR PROCEDURES

- A. Amend existing provincial procedures to reflect recommendations contained in this review.
- B. Expand and clarify all sections within the provincial procedures manual that relate to the following:
 - * the causes of people/bear conflicts;
 - * the routine review of potential conflict situations and contingency planning at regional or district levels;
 - * the guidelines for deciding to translocate, destroy or leave a problem bear alone;
 - * the handling of public relations at a conflict site; and
 - * the report of conflict investigations and follow-up actions.
- C. Draft regional policies or adapt them to conform with the basic principles of provincial policy procedures. Include a range of preventive and reactive management options that are applicable to regional and site-specific conditions.

APPENDIX

Reference to another jurisdiction can increase understanding of the causes of people/bear conflicts and the design of management policies and strategies. In Pennsylvania, bear conflicts and control contrast the situation in B.C. so sharply that they help explain why policies and strategies must be adopted to local circumstances.

In Pennsylvania, bear hunting is an annual, much esteemed traditional activity. Many hunters participate. In the past, an excessive demand led to the reduction of the state's black bear population. The hunt was discontinued in 1970 until population of about 6,000 bears recovered.

Statistics available since the reopening of the hunting season in Pennsylvania show that in 1980 and 1981, an annual average of 72,000 bear hunters, or 12 hunters per live bear, harvested 870 bears in a one-day season--a harvest rate of 14.5 per cent. These figures contrast sharply with B.C.'s annual 0.16 hunter per live bears, an average annual harvest rate of 7.2 per cent between 1980 and 1985.

It is reasonable to conclude that the high annual hunter harvest in Pennsylvania is key in the prevention of chronic problem bear situations. There are few bears that need to seek out unoccupied habitat around settlements where problems can develop. Bears that stray into urban areas can be translocated to areas of low bear density. Moreover, these bears are probably moved before they are conditioned to living off urban food supplies. However, the solutions that work in Pennsylvania may be impractical and/or publically unacceptable in British Columbia.

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